

NEW SPECIES OF TEPHRITIDAE (DIPTERA) FROM THE
WESTERN UNITED STATES, MEXICO, AND
GUATEMALA, WITH REVISIONARY NOTES

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This paper makes available information about genera and species of New World Tephritidae that resulted from our recent studies of institutional and private collections, primarily those in western continental United States.

We have included descriptions of seven new species in five different genera: one in *Eutreta* Loew, three in *Gonioxyna* Hendel (this genus not previously recorded from the Western Hemisphere), one in *Paraterellia* Foote, one in *Tephritis* Latreille, and one in *Valentibulla* Foote and Blanc. The status of the generic name *Styilia* and its type designation is discussed in light of new information from France. Records are given of the first collection of *Aciurina mexicana* (Aczél) in the United States, and new information is given on the description and distribution of the two known species of *Xenochaeta*. A revision of the previously published key to California tephritid genera (Foote and Blanc, 1963) is given to accommodate *Gonioxyna*, and revisional sections for California species keys in the same publication are provided for the five new species and for the two *Xenochaeta* species. Genera and species are arranged alphabetically in the text of the present paper.

Letter abbreviations representing the various private and institutional collections from which specimens were borrowed for these studies, and in which type material of the newly described species is deposited, are listed in our acknowledgment section.

Aciurina Curran

Aciurina mexicana (Aczél)

Tephrella mexicana Aczél 1953:194, figs. 58, 59; pl. VIII, fig. Y (description).

Not surprisingly, the first United States records of this species, previously

known only from Nogales, Mexico, are herewith noted. One male and 1 female, collected in March and April, 1933, at Phoenix, Arizona, have been seen in the collection of the American Museum of Natural History, New York, N.Y. Also identified are 2 males and 1 female in the U.S. National Museum of Natural History, Washington, D.C., from Catalina Mountains, Arizona, collected May 31 and June 8, 1957, by G. Butler and F. Werner. One of the males and the female collected on June 8, 1957 at "Hk mi 5," were swept from *Baccharis sarothamnus* [? = *sarothroides* A. Gray].

Eutreta Loew

A single specimen of a unique species of *Eutreta* from Tulare Co., California, is described herewith. It apparently belongs to the subgenus *Unca-culeus*, which was described by Stoltzfus (1977), and runs in his key (p. 391) to couplet 5, which contains *decora* Stoltzfus and *pollinosa* Curran. It also runs to *pollinosa* in the key to California *Eutreta* species presented earlier by us (Foote and Blanc, 1963:28).

The following couplet may be used to replace the affected part of both the keys cited above:

First and second costal cells lighter posteriorly than anteriorly; discal spots fused into yellowish brown streak in middle of wing; anteapical brown band about as wide as apical hyaline area	<i>pollinosa</i> Curran
First and second costal cells evenly dark; discal spots large, poorly delimited, fused, especially in cell R3, but not forming a mid yellowish brown streak; anteapical brown band distinctly wider than apical hyaline area	<i>coalita</i> Blanc, n. sp.

Eutreta coalita Blanc, new species

Head.—In profile, head about 1.5 times as high as long, face and frons meeting at a distinct angle of about 110°, oral margin slightly produced; frons at vertex about 2.2 times as wide as one eye, the sides nearly parallel, beset with abundant, distinct, whitish setulae; face yellow pollinose with a very slightly raised, rounded central carina; dark spot on parafacial between eye and antennal base absent; most postoculars long, expanded, whitish, but mixed with a few short dark setae; all head bristles light brown except posterior pair of upper fronto-orbitals, which are short and whitish.

Thorax.—Scutum grayish brown, heavily pollinose, bristles in full complement, all very light brown, dorsocentrals situated halfway between transverse suture and transverse line through anterior supra-alars; scutellum yellowish brown, somewhat darkened in a narrow, poorly delimited band along scuto-scutellar suture; postscutellum yellow, postnotum very dark gray; pleural sclerites yellowish, suffused with darker markings, especially the

katepisternum. *Wing* as in Fig. 3, a dark brown band covering 1st and 2nd costal cells, subcostal cell, most of cell R1 distad of subcostal cell, and subapical areas of cells R3 and R5; wing disk dark to base, suffused with comparatively large light brown spots that coalesce in many areas, especially in cell R3; proximal margin of apical hyaline arc oblique; hyaline arc occupying apical areas of cells R3, R5, and AM, somewhat narrower than dark area proximal to it; posterior border of disk lighter brown than at center. *Legs* all yellow, concolorous with head, no rows of outstanding setae on middle or hind femora or tibiae; basal third or half of hind femur very slightly darkened.

Abdomen.—Abdominal tergites 1–3 uniformly dark grayish brown, rather heavily pollinose; 4th tergite grayish brown on proximal $\frac{2}{3}$ with an indistinctly delimited brownish yellow band completely across apical $\frac{1}{3}$; tergite 5 almost completely yellow brown except for an extremely narrow grayish brown proximal border, beset with short, relatively stout, pale setulae separated from each other by about their own length. Ovipositor sheath shining, flattened in dried state, quite as wide at base as last abdominal tergite, yellow but with a vaguely delimited brown spot centrally at base, apex with a narrow black margin. Ovipositor tip as in Fig. 1.

Holotype, female, 5 mi. E Smith Meadow, 9 Mile Cyn., Tulare Co., California, 22/VI/1961, 7850 ft., R. L. Macdonald (USNM Type No. 75860).

Discussion

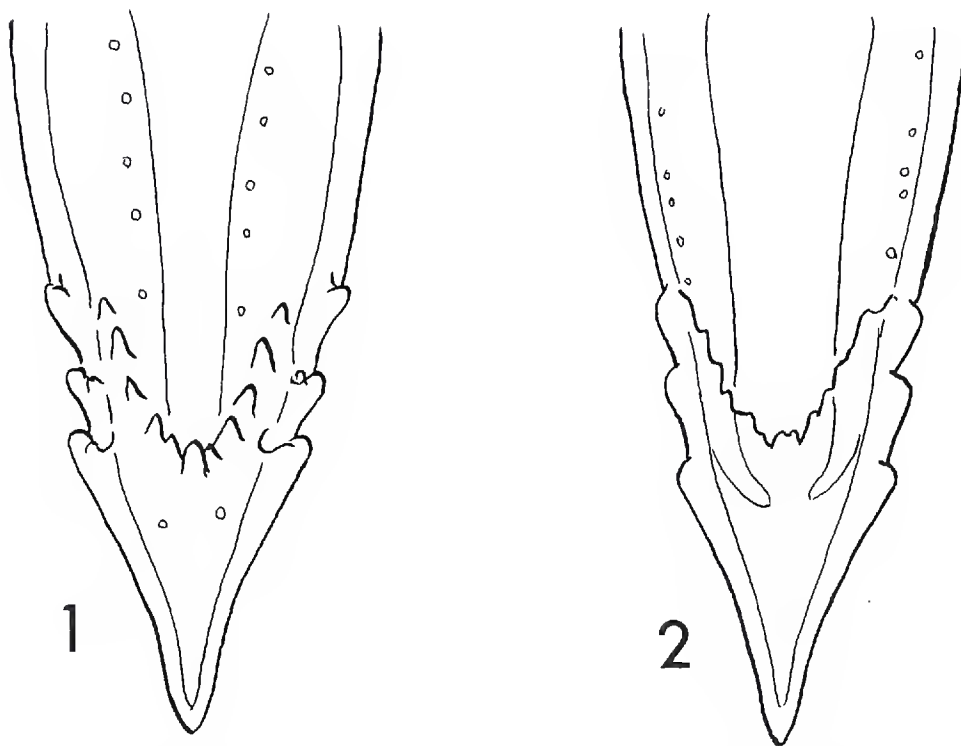
The new species differs from both *decora* and *pollinosa* by the wing pattern (Fig. 3), which is unique in the entire genus in that the small light brown discal spots are poorly delimited and are coalesced in some areas, and by the shape of the ovipositor tip (Figs. 1, 2).

Gonioxya Hendel

Gonioxya Hendel 1927:160. Type-species, *magniceps* Hendel 1927:161, Pl. XI, fig. 3 (by original designation).

Five species of this remarkable genus have been described from the Palearctic Region: the type-species *magniceps* Hendel, *lubrica* Dirlbek and Dirlbek, and *conopea* Dirlbek and Dirlbekova (a synonym of *magniceps*), all from Mongolia; *brevicornis* Chen and *festiva* Chen from southeastern China; and *paradigma* Hering from Sapporo, Japan. The 3 species described here increase the total number for the world to 8 and comprise the first report of the genus from the New World. The host plants of none of the palearctic species are known, but one of those described here has been swept from *Artemisia* and *Chrysothamnus* in California.

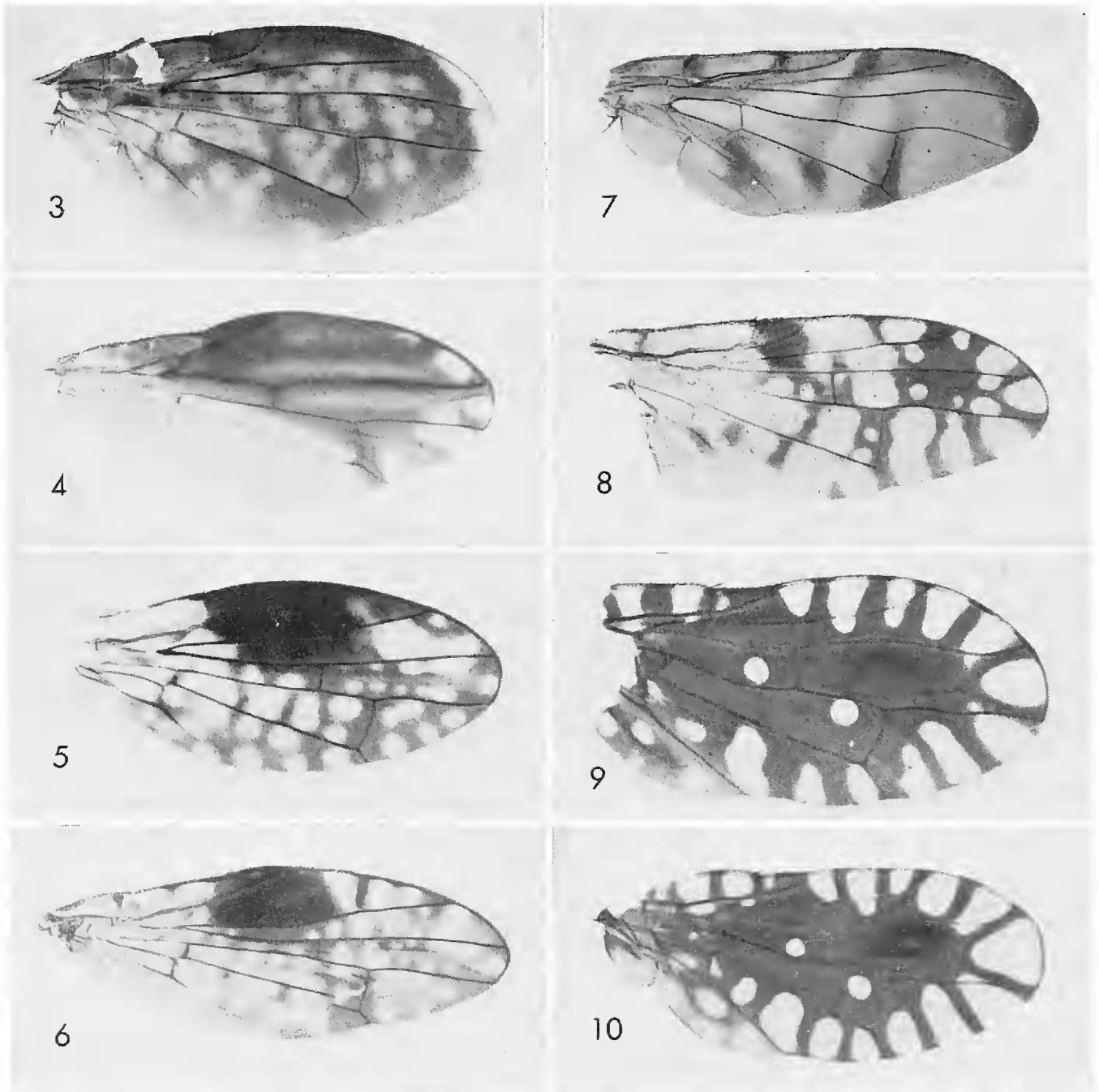
As originally described by Hendel (1927), the genus *Gonioxya* possesses



Figs. 1, 2. Ovipositor tip. 1, *Eutreta coalita* Blanc, n. sp.; 2, *E. pollinosa* Curran.

all of the characters of the tribe Tephritini, including a short, whitish posterior upper fronto-orbital, the dorsocentral situated very close to the transverse suture, vein R2+3 bare, and the scutum, scutellum, and abdominal terga heavily pollinose. The genus runs satisfactorily in the key to California genera of Tephritidae (Foote and Blanc, 1963:6) to couplet 27, which contains *Tephritis* and *Paroxyna*. The following partial key is to be substituted for couplet 27 in that publication. It sets forth the characters by which *Gonioxyina* may be distinguished from all the North American representatives of both those genera.

- 27(26) Proboscis rarely geniculate (short-geniculate in *opacipennis* Foote), the labellum usually padlike; usually 1 dorsal preapical seta on hind femur *Tephritis*
 Proboscis distinctly geniculate, labellum somewhat elongate; none or 2 dorsal preapical setae on hind femur 27a
- 27a(27) Costa bowed anteriorly between subcostal break and apex of vein R2+3, causing cell R1 to be distinctly wider than cell R3 at level of apex of subcostal cell; no preapical dorsal setae present on hind femur; subcostal cell without a distinct rounded hyaline spot *Gonioxyina*
 Costa not distinctly bowed in this region of wing; hind femur with more than 1 preapical dorsal seta, the 2 most apical ones side by side; subcostal cell usually with a distinct, round hyaline spot *Paroxyna*



Figs. 3-10. Right wing. 3, *Eutreta coalita* Blanc, n. sp.; 4, *Gonioxyna fuscata* Foote, n. sp.; 5, *G. hyalina* Foote, n. sp.; 6, *G. trinotata* Foote, n. sp.; 7, *Paraterellia immaculata* Blanc, n. sp.; 8, *Tephritis leavittensis* Blanc, n. sp.; 9, *Valentibulla mundulata* Foote, n. sp.; 10, *V. steyskali* Foote.

Key to New World Species of *Gonioxyna* Hendel

1. Three distinct hyaline spots in cell R1 immediately distad of subcostal cell; cell R1 about 4.0 times as wide as cell R3 at level of apex of subcostal cell *trinotata* Foote, n. sp.
- Cell R1 almost entirely dark, at most only one hyaline spot at apex; cell R1 not more than 2.0 times as wide as cell R3 at level of apex of subcostal cell 2

2. Cell R1 with a distinct hyaline spot at apex; a large, prominent hyaline area present in apical third of cell R3 and anterodistal quarter of cell R5 *hyalina* Foote, n. sp.
 Cell R1 completely dark; at most only 1 small hyaline spot present at apices of each of cells R3 and R5 *fuscata* Foote, n. sp.

***Gonioxyna fuscata* Foote, new species**

Head.—In profile, head nearly square, about 1.1 times as high as long, frons and face meeting at a distinct angle of about 135°, gena directly below eye about 0.16 times eye height, occiput swollen; mouthparts clearly geniculate, oral margin slightly protruding below 3rd antennal segment, face about 0.5 times as high as distance between oral margin and lower border of gena, antennal foveae rather deep but face without a central carina; frons yellowish brown, about as wide at vertex as long; 2 pairs delicate black lower fronto-orbitals, 2 pairs upper fronto-orbitals, of which the anterior is black and slender, the posterior short, swollen, colorless; ocellars and verticals comparatively slender, black, prominent; antennal bases narrowly but distinctly separated by a lunular ridge; some of postoculars short, colorless.

Thorax.—Scutum, thoracic pleura, and scutellum gray pollinose, without pattern, all bristles except posterior notopleurals slender, black; dorso-centrals quite close to transverse suture; 2 pairs scutellars, posterior pair about 0.3 times as long as anterior; postscutellum colorless; metanotum black pollinose; 1 pair dark katepisternals, 1 pair dark anepisternals, 1 pair colorless anepimerals; halter yellow. *Legs* yellowish brown, for the most part concolorous with head except for basal posterior half of fore and middle femora, which are dark to black pollinose; middle and hind femora and tibiae without rows of outstanding setulae; no setulae near dorsal apex of hind femur. *Wing* (Fig. 4) with costa bowed anteriorly in the area of subcostal cell, rendering cell R1 about 1.5 times as wide as cell R3 at level of apex of subcostal cell; 1st costal cell light, 2nd costal cell evenly dark, this dark area contiguous with an extensive dark area extending to wing apex and posteriorly to a point where vein CuA1 enters wing margin; 4 rounded marginal hyaline spots, 1 near apex of cell R1, 1 each at apices of cells R3 and R5, and 2 along margin of cell AM; centers of cells R1, R3, and R5 comprising slightly lighter areas; vein R2+3 bare above and below.

Abdomen.—Abdominal tergites only slightly darker grayish pollinose than scutum and scutellum, each tergite with an extremely narrow light margin posteriorly but with no other pattern.

The name *fuscata* refers to the extensive dark area in the wing disk, unrelieved by hyaline discal spots characteristic of other species in the genus.

Holotype, male, 1 mi. E Doyle, Lassen Co., California, 5/VI/1963, F. L.

Blanc, on *Artemisia tridentata* (USNM Type No. 75861). Paratypes: CALIFORNIA: 3 ♂♂, Doyle, otherwise same data as holotype (wing of 1 male on slide) (USNM); 1 ♂, 5 mi. S Doyle, Lassen Co., 28/V/1963, F. L. Blanc and G. M. Buxton, swept ex *Chrysothamnus* sp. (CDA); 1 ♂, Hallelujah Jct., Lassen Co., 21/VI/1963, R. H. Foote and F. L. Blanc, swept from *Artemisia tridentata* Nutt. (FLB). WYOMING: 1 ♂, Stratton Exp. Watershed nr. Saratoga, 9-16/VI/1976, J. M. Schmid, Hopkins No. 36896Q (USNM).

Discussion

Gonioxyna fuscata differs from all other species in the genus primarily by the dark wing pattern, which is devoid of rounded discal hyaline spots. It also differs from species described from the Palearctic Region in that the produced costa is somewhat more rounded in the region of the subcostal cell, and the apical fourth of vein R4+5 gradually bends posteriorly before ending at the wing margin.

Among the North American tephritines, the wing pattern of *fuscata* resembles somewhat that of *Tephritis opacipennis* Foote (see Foote, 1960:74 and fig. 1; Foote and Blanc, 1963:69 and fig. 85), but the latter species has a different arrangement of discal hyaline spots, 2 distinct rounded hyaline spots in cell R1 immediately distad of the subcostal cell, and a completely dark discal cell. Moreover, *T. opacipennis* possesses much less distinctively geniculate mouthparts.

Gonioxyna hyalina Foote, new species

Head.—In lateral view, head about 1.3 times as high as long, frons slightly swollen, meeting face at a distinct angle of about 130°, gena directly below eye about 0.2 times eye height, occiput enlarged; mouthparts clearly geniculate, oral margin distinctly produced; antennal foveae rather deep but face lacking a central carina; frons yellow, about as wide at vertex as long; 2 pairs delicate black lower fronto-orbitals, 2 pairs upper fronto-orbitals, posterior pair shorter, white, somewhat enlarged; ocellars and verticals slender, black, prominent; a few of the postoculars short, quite dark, mixed with longer, stouter, yellow setae; antennal bases rather widely separated, basal 3rd of arista somewhat swollen, bright yellow, remainder black.

Thorax.—Scutum, scutellum, and thoracic pleura concolorous, gray pollinose, all bristles slender and black; dorsocentrals very close to transverse suture; 2 pairs scutellars, posterior pair about 0.6 times as long as anterior pair; postscutellum colorless; metanotum dark gray to black, pollinose; 1 pair dark katepisternals, 1 pair dark anepisternals, 1 pair colorless anepimerals; halter yellow, concolorous with frons. *Legs* mostly yellow but all femora suffused with black anteriorly and posteriorly on basal half to two-

thirds; middle femora and middle and hind tibiae without rows of outstanding setulae; no dorsal setulae near apex of hind femur but with 3–6 long black anteroventral setae on apical half. *Wing* (Fig. 5) with costa markedly bowed anteriorly between subcostal break and apex of vein R2+3, rendering cell R1 about 2.0 times as wide as cell R3 at level of apex of subcostal cell; proximal fourth of wing disk with only traces of dark marks, remainder of disk with dark background, especially middle third of cell R1, and with a large subapical hyaline area in apical third of cell R3 and anterodistal quarter of cell R5, numerous rounded hyaline spots present posterior to vein R5; vein R2+3 bare above and below.

Abdomen.—Abdominal terga concolorous with thorax, dark gray pollinose, each tergite with 2 large ill-defined dark spots halfway between anterior and posterior margins, one on each side of center line.

The name *hyalina* is indicative of the prominent hyaline area occupying the apical third of cell R3 and anterodistal quarter of cell R5.

Holotype, male, Tzontehuitz, near S. Crist., 9600 ft., Chis., Mexico, 17/V/1969, W. R. M. Mason (CNC). Paratype, 1 ♂, Mt. Tzontehuitz, 9500 ft., 27/V/1969, H. J. Teskey (CNC).

Discussion

Gonioxyna hyalina is easily distinguished from *G. fuscata* by the wing patterns. In the former species, a prominent hyaline area occupies the apical third of cell R3 and the anterodistal quarter of cell R5; cell R1 exhibits a distinct hyaline spot at its apex; and cell R1 is about 2.0 times as wide as cell R3 at the level of the apex of the subcostal cell. In *fuscata*, the prominent light area is completely lacking, being replaced by a continuous dark area having small hyaline spots at the apices of cells R3 and R5; cell R1 is completely dark without a hyaline spot at its tip; and cell R1 is not more than 1.5 times as wide as cell R3 at the level of the subcostal cell apex.

Gonioxyna trinotata Foote, new species

Head.—In lateral view, head about 1.3 times as high as long, frons slightly bowed, meeting face at a distinct angle of about 135°, gena directly below eye about 0.25 times as high as head, occiput swollen, mouthparts distinctly geniculate, oral margin only slightly produced; antennal foveae rather deep but face lacking a distinct central carina; frons yellowish, about as wide at vertex as long; 2 pairs delicate black lower fronto-orbitals, 2 pairs upper fronto-orbitals, the posterior pair shorter, somewhat enlarged, colorless; ocellars and verticals slender, black, prominent; a few of the postoculars short, dark, mixed with longer, stouter, yellowish setae; antennal bases narrowly separated.

Thorax.—Scutum, scutellum, and thoracic pleura concolorous, gray pol-

linose, all bristles slender, black; dorsocentrals very close to transverse suture; two pairs scutellars, the posterior pair nearly 0.5 times as long as anterior pair; postscutellum colorless; metanotum dark gray to black, polli-nose; 1 pair dark katepisternals, 1 pair dark anepisternals, 1 pair colorless anepimerals; halter yellow, concolorous with head. *Legs* mostly yellow but all femora suffused with black anteriorly and posteriorly on basal half to two-thirds, middle and hind femora and tibiae without rows of outstanding setulae; no dorsal setulae near apex of hind femur. *Wing* (Fig. 6) with costa markedly bowed anteriorly between subcostal break and apex of vein R2+3, rendering cell R1 about 4.0 times as wide as cell R3 at level of apex of subcostal cell; proximal fourth of wing disk yellowish with only traces of dark markings, remainder of disk with dark background, especially middle third of cell R1, 3 hyaline spots in cell R1 immediately distad of subcostal cell, numerous rounded hyaline spots present posterior to vein R5; vein R2+3 bare above and below.

Abdomen.—Abdominal terga concolorous with thorax, dark gray polli-nose, each tergite with 2 large, ill defined dark brown spots halfway between anterior and posterior margins, one on each side of center line.

The name *trinotata* signifies the three distinct hyaline spots in cell R1 immediately distad of the subcostal cell.

Holotype, male, 11.5 km NW San Marcos, Guatemala, 15°1'N, 91°48'W, 3000 m, 24–25/V/1973, Erwin and Hevel Central American Exped. (USNM Type No. 75862).

Discussion

Gonioxyna trinotata may be recognized among the New World species by the presence of 3 distinct hyaline spots in cell R1 immediately distad of the subcostal cell. This area is either entirely dark, as in *fuscata*, or possesses a small but distinct hyaline spot at the apex of cell R1, as in *hyalina*. Moreover, the width of cell R1 at the level of the subcostal cell is about 4.0 times that of cell R3, much wider than in either of the other two species.

The single representative of this species was swept by Mr. Gary Hevel, Department of Entomology, National Museum of Natural History, Smithsonian Institution, from an unknown plant or plants in a juniper montane moist forest having a few 5-needle pines. The understory was mostly of bunch grass.

Paraterellia Foote

In studying several California insect collections, Blanc encountered a previously undescribed species of *Paraterellia* from Arizona and Texas. This discovery adds to the 3 species previously known and reviewed by Foote (1960).

That species is described here. The following key is intended to supplant that provided by Foote (1960:122).

Key to Known Species of *Paraterellia*

1. Brown costal band immediately posterior to apex of vein R3 as wide as cell R3 and completely filling it at this point 2
 Brown costal band immediately posterior to apex of vein R3 distinctly narrower than cell R3 3
2. Dark spot present laterally on mesonotum, immediately anterior to halter, and a pair on postscutellum and metanotum; costal band complete, not interrupted immediately distad of subcostal cell *varipennis* Coquillett
 Dark spots not present in these locations; costal band interrupted, sometimes incompletely, by a hyaline area immediately distad of apex of subcostal cell *immaculata* Blanc, n. sp.
3. Transverse hyaline area between veins r-m and dm-cu with convex sides, always completely closed by a brown band at costal margin, and closed, or nearly so, by a brown area on posterior margin of wing *superba* Foote
 This hyaline area almost parallel-sided and extending completely across wing from costa to posterior margin *ypsilon* Foote

Paraterellia immaculata Blanc, new species

Head.—In profile, about 1.2 mm high, 1.0 mm long; frons about 0.9 mm long, 0.7 mm wide at vertex, tapering to about 0.6 mm at antennae, orange in anterior half blending to light gray in posterior half; face bare, white except light yellow centrally behind antennae; antennae pale yellow, lighter on 2 basal segments and base of third, first and second segments with short black setae dorsally, third antennal segment rounded apically and with very minute white setulae; arista bare, black except for yellow base; all head bristles black.

Thorax.—Scutum ochre, subopaque, covered with fine dark brown setulae, dorsocentrals and acrostichals in a transverse line immediately anterior to posterior supra-alars, humerus white; scutellum translucent white to opaquely hyaline and glabrous with 2 pairs well developed scutellars; postscutellum and metanotum orange to ochre and without black spots; a brown to black spot immediately posterior to wing base; halter pale yellow; a wide white stripe beginning at humerus and extending to wing base, remainder of pleural sclerites glabrous, orange to ochre. *Wing* as in Fig. 7, about 4.5 mm long, 1.6 mm wide, hyaline, with yellow and smoky gray markings as follows: a wide costal band extending from wing base distad

to, or slightly beyond, distal end of vein M; a basal yellowish band extending from wing base across basal cubital cell, continued as a darker band curving posteriorly through anal cell and ending near posterior margin of wing; a median crossband originating in a dark smoky spot on the costal vein slightly distad of subcostal cell and extending posteriorly across vein r-m, across the center of discal cell, and about $\frac{2}{3}$ across cell Cu, this band widened proximally wedge shaped in the center of discal cell; another crossband covering vein dm-cu, extending anteriorly across most of the width of cell R5 and posteriorly to wing margin. Hyaline area present in costal band covering much of distal half of cell 2nd C, and a wedge shaped hyaline area immediately distad of subcostal cell, almost always attaining costal vein. *Legs* orange to ochre, somewhat darkened in center area of each segment; mid femur of male with posteroventral row of outstanding setae along nearly entire length, relatively long and slender at base, gradually becoming short and spinelike near apex; female without such bristles.

Abdomen.—Glabrous, orange, tergum with evenly distributed fine black setae; male tergites 2 through 5 each with a prominent pair of black spots, the pair on 2nd tergum placed dorsally, those on terga 3–5 well down the sides of the abdomen; 1 pair black spots on dorsum of epandrium. Female tergites spotted similarly but with the following differences: tergites 3–5 usually each with an additional pair of black spots halfway between tergal median line and lateral spots (sometimes these median pairs greatly reduced or absent); usually 1 pair black spots on dorsum of ovipositor sheath near its base.

Body length: male, approx. 5 mm; female, 5.4 mm.

The name *immaculata* is descriptive of the absence of dark spots on the postscutellum, metanotum, and immediately anterior to the bases of the halteres.

Holotype, male, 10 mi. W Portal, Arizona, 20/VIII/1976, swept from fruit of *Juniperus decipiens*, F. L. Blanc (USNM Type No. 75863). Allotype, female, same data as holotype (USNM). Paratypes: ARIZONA: 5 ♀♀ (FLB), 5 ♀♀ (CDA), 2 ♂♂, 11 ♀♀ (USNM), same data as holotype; 1 ♂, 2 ♀♀ (FLB), 2 ♂♂, 2 ♀♀ (USNM), AMNH Southwest Research Sta., 5 mi. W Portal, 5400 ft., 19/VIII–3/IX/1976, in ultraviolet light trap, L. L. Lampert; 1 ♀, 10 mi. W Portal, 20/VIII/1971, on *Juniperus*, E. E. Grissell, R. F. Denno (UCD); Madera Cyn., Santa Cruz Co., 4880 ft., V. L. Vesteryby, 1 ♀ 11/VII, 2 ♀♀ 15/VII, 2 ♂♂, 2 ♀♀ 18/VII, 1 ♂ 23/VII, 1 ♀ 26/VII, 1 ♀ 22/IX (all 1963, UCD); 1 ♂, same data except 12/VIII/1965, D. N. Harrington (UCD); 1 ♀, Paradise, Chiricahua Mts., at light, A. B. Patterson (UCD; 2 ♀♀, Pinery Cyn., Chiricahua Mts., Cochise Co., 6000 ft., 12/VII/1919, W. Stone (USNM). TEXAS: 1 ♂, McKittrick Cyn.; 1 ♂, Pratt House; 1 ♀, West Dog Cyn.; all Guadalupe Natl. Park, Culbertson Co., 7/VII–13/VIII/1977 (USNM).

Discussion

Of the previously described species of *Paraterellia*, this new species most closely resembles *varipennis* Coquillett. It differs from *varipennis* in lacking a pair of black spots on the postscutellum, black spots on the sides of the mesonotum, and a black spot in front of each halter. It differs further in having a hyaline break in the costal wing band (Fig. 7) immediately distad of the subcostal cell which usually attains the costal vein, while in *varipennis* the costal band immediately distad of the subcostal cell is uninterrupted and usually covers the entire width of cell R1. In *immaculata*, n. sp., the distal $\frac{1}{3}$ to $\frac{1}{2}$ of cell 2nd C is mostly hyaline, unlike the yellow opaque condition over this entire cell in *varipennis*. The capitate labellar bristles present in *superba* and *ypsilon* are lacking in both *immaculata* and *varipennis*.

Styilia Robineau-Desvoidy and *Paroxyna* Hendel

Styilia Robineau-Desvoidy 1830:734; Cole 1969:356 (review, western U.S.).
Paroxyna Hendel 1927:146; Foote and Blanc 1963:46 (review, California);
Foote 1965:665 (N. Amer. catalog); Novak 1974:1 (revision, Canadian and U.S. species).

In his original description of the genus *Styilia*, Robineau-Desvoidy included three species—*bidentis*, *mentharum*, and *maculata*—without designating a type-species, and for years no valid type designation for this genus was known or recognized. At least the first 2 species belong to the tribe Tephritini; *bidentis* has been shown by Collin (1950) and Hering (1954) to belong to *Paroxyna*, while H. K. Munro (1957) states that *mentharum* is congeneric with other species in the palaeartic genus *Myopites* Brébisson. Hering (1954) designated *bidentis* as type-species, and Munro (1957) selected *mentharum*.

Neither of these designations is valid. As shown by Hardy (1977), the earliest known (and hence only valid) type-designation was made by Desmarest (1848), who unambiguously selected the third species, *mentharum*, without any indication of its affinities. Foote has recently corresponded with Loïc Matile, Museum National d'Histoire Naturelle, Paris, who indicates that “. . . of the Robineau-Desvoidy collection, unfortunately, 733 species only were saved, mostly tachinids, and there are no *Styilia* available. The types must be considered destroyed.” The name *Styilia*, therefore, must be considered a *nomen dubium*. In modern literature, *Styilia* often has been mentioned in connection with discussions of *Paroxyna*, but such an association appears to be no longer tenable.

The only American work known to us actually to use the name *Styilia* was that of Cole (1969), who mistakenly (but understandably) followed Hering's 1954 designation of *bidentis* in applying it to western U.S. species. The

species names cited by Cole, henceforth to be combined with the name *Paroxyna* as in the recent past (see Foote, 1965; Novak, 1974) are: *americana* Hering, *clathrata* Loew, *coloradensis* Quisenberry, *corpulenta* Cresson, *distincta* Quisenberry, *genalis* Thomson, *murina* Doane, *maculifemorata* Hering, *obscuripennis* Snow, *pallidipennis* Cresson, *snowi* Hering, *tenebrosa* Coquillett, and *variabilis* Doane.

Tephritis Latreille

The new species described here was collected by Blanc at Leavitt Lake, Mono Co., California in 1966. During the same year, J. Novak collected a few specimens from near Glacier Park in Montana. In 1957 one female was collected in Washoe Co., Nevada by R. C. Bechtel.

The new species runs to *candidipennis* Foote (couplet 9) in our key to the California species of *Tephritis* (Foote and Blanc, 1963:64). The following key to replace couplet 9 will enable one to distinguish among the closely related California species:

- 9(8) Dark band from subcostal cell to vein R4+5 situated at right angles to horizontal axis of wing 9a
 Dark band covering subcostal cell extending obliquely to cover vein r-m 10
 9a(9) Apex of cell R largely dark although hyaline spots may be present; Y-shaped mark in apex of cell R5 rarely with broken arms; hind tibia with distinct row of black anterodorsal setae
 *leavittensis* Blanc, n. sp.
 Apex of cell R largely hyaline; Y-shaped mark in apex of cell R5 often incomplete; hind tibia without distinct row of prominent black setae *candidipennis* Foote

Tephritis leavittensis Blanc, new species

Head.—In profile, about 1.3 times as high as long, face distinctly protruding below antennae, face and frons meeting at an angle of about 135°; gena below eye about 0.18 times eye height, genal bristle black, genal setulae dark, prominent; occiput swollen; frons brownish yellow, about 0.60 mm wide at vertex, narrowing to about 0.50 mm at antennal bases, about 0.55 mm long; the 2 lower fronto-orbitals heavy, shining black; posterior upper fronto-orbital white, about 0.75 times as long as anterior; verticals nearly as long as head height; face dark yellow, antennal foveae tinged with black; yellow palpi with 2–5 prominent black setulae apically; antenna nearly as long as face, arista dark brown except base yellow.

Thorax.—Scutum, scutellum, and pleural sclerites brownish gray pollinose, without additional markings except posterior half of notopleuron

somewhat yellowish, and scutellum darker centrally than marginally; complement of thoracic bristles usual for the genus, all black except posterior notopleural, which is yellowish white; postscutellum and metanotum dark gray rather than brownish gray; scutal setulae light yellow, inserted closer to each other than their average length; scutellum bare centrally, setulae present only laterally; halter dark yellow. *Legs* entirely yellow except for anterior surface of hind coxa, which is suffused with black; posterodorsal surface of middle tibia with stout but very short black setulae; hind tibia of both male and female with distinct anterodorsal row of black setae extending $\frac{2}{3}$ to $\frac{3}{4}$ the length of tibia from its base, the longest seta about as long as width of tibia; a parallel row of shorter dark setae dorsally; hind femur with a single black preapical dorsal seta. *Wing* pattern as in Fig. 8, with a prominent, roughly triangular hyaline area immediately distad of subcostal cell extending posterior to and touching vein dm-cu; dark area in stigma extending posteriorly without hyaline spots to middle of cell R, thence to vein M with a few hyaline markings; vein r-m removed from vein dm-cu by about its own length; vein R2+3 completely bare above and below; triangular extension of basal cubital cell about equilateral.

Abdomen.—Tergites dark gray pollinose, concolorous with blackish metanotum rather than with brownish scutum and scutellum, without pattern; densely covered with light yellow to colorless setulae inserted much closer to each other than their average length, becoming longer laterally and posteriorly; about 4 long black setae laterally on last abdominal tergite; ovipositor sheath flat, black, with setulae on basal half similar to those on abdominal tergites, apically with extremely fine short golden hairs; from above almost 2 times as long as last abdominal tergite and about as wide at base as long.

Holotype, female, Leavitt Lake, Mono Co., Calif., 1/IX/1966, on *Arnica longifolia*, F. L. Blanc (USNM Type No. 75864). Allotype, same data as holotype (USNM). Paratypes: CALIFORNIA: 2 ♀♀, same data as holotype (FLB); 1 ♀, 2 mi. S Myers, Eldorado Co., 24/VII/1955, J. C. Downey (CDA); 1 ♂, 1 ♀, Lake Tahoe, 20/VI/1953, A. L. Melander (USNM). NEVADA: 1 ♀, 16 mi. NW Gerlach, Washoe Co., 7/VIII/1957, alfalfa, R. C. Bechtel (NDA). MONTANA: 1 ♂, 2 ♀♀, 10.0 mi. NW Glacier, 5/VII/1966, J. Novak (USNM).

Discussion

T. leavittensis belongs to a complex of closely related species containing *candidipennis* Foote, *ovatipennis* Foote, *signatipennis* Foote, and *araneosa* (Coquillett). The last-named species is widespread and is commonly held in itself to be a mixture of species. The principal differences so far observed among the known species of this complex appear to lie in the degree of

infuscation of the wing pattern and, inversely, the size of the hyaline areas, as the distribution of the hyaline areas appears to be quite similar in all members of the group. However, *leavittensis* strongly differs from *candidipennis*, the species which it most closely resembles in wing pattern, by the prominent rows of black setae inserted on the anterodorsal surface of the hind tibia in both males and females. This character is absent in *candidipennis*.

Valentibulla Foote and Blanc

The following species was found by Blanc during a recent study of tephritids in the insect collection of the University of California at Davis. It is quite distinctive among other species in the genus (see "Discussion" below), having, like *steyskali* Foote (Steyskal and Foote, 1977:154), a shining black scutum and scutellum. Because the latter is the only other known species with the same thoracic character, the key given by Foote (1977) should be amended as follows:

- 1(1a) At least posterior half of scutum polished black, not grayish pollinose
 1a(1) Vein R2+3 abruptly curved toward costa at level of basal one-third of cell R5 *steyskali* Foote
 1b(1a) Vein R2+3 gradually curving toward costa from about level with a point midway between crossveins r-m and dm-cu
 *mundulata* Foote, n. sp.

Likewise, a corresponding change should be made in the key to the California species of *Valentibulla* (Foote and Blanc, 1963:91) by adding a couplet to precede the one already present, as follows:

1. At least posterior half of scutum shining black
 *mundulata* Foote, n. sp.
 Scutum entirely tomentose, dull gray 2

Valentibulla mundulata Foote, new species

Head.—In profile, about 1.75 times as high as long, face and frons curving into each other at antennal bases without an angle, gena below eye about 0.2 times eye height; genal bristle one of several rather long, expanded, yellowish setae inserted in the same area, genal setulae yellowish; frons about 0.6 mm wide at vertex, about 0.5 mm wide at antennal bases, about 0.5 mm long from vertex to ptilinum, densely covered, especially laterally, with short, yellowish, expanded setae similar to those on scutum; antennal foveae rather deep but no central ridge between them; face, frons, and antennae concolorously yellow; antenna about 0.7 times as long as face, arista dark brown on apical two-thirds.

Thorax.—Scutum entirely shining black, somewhat roughened on anterior half; densely covered with expanded yellowish setulae except in the region of the intra-alars and postalars, some macrochaetae present; pleural sclerites shining black; bristles usual for the genus, all black except posterior notopleural, which is expanded and yellowish; scutellum shining black; postscutellum very dark red; metanotum glossy black; halter red. *Legs* mainly yellow, but following areas of black present on femora: entire length of fore femur posterodorsally, gradually widening from apex to cover base completely on posterior surface; basal third to half of ventral and posteroventral surfaces of middle femur; ventral surface of basal half of hind femur; no rows of outstanding setae on middle or hind femora or tibiae. Wing (Fig. 9) about 3.4 mm long, 1.5 mm wide; apical spot in cell R5 0.28 times as long as cell; anterior and posterior preapical spots in cell R5 quite small, the proximal base of the V-shaped marking rather wide; hyaline marks in cell Cu1A about same width as dark rays between them; vein R2+3 gradually curving anteriorly toward costa from a point halfway between crossveins r-m and dm-cu; vein M bowed posteriorly $\frac{1}{2}$ way between vein dm-cu and wing margin but not markedly bent posteriorly in its apical third; anterior extension of vein r-m intersecting apex of subcostal cell; vein R4+5 haired to level of vein dm-cu or slightly beyond.

Abdomen.—Dorsum shining black, beset with extremely fine, colorless setulae; ovipositor sheath not flattened, shining black, about 3.0 times as long as terminal abdominal tergite.

Holotype, female, Mtn. Mdw. Rch., head Coffee Cr., Trinity Co., California, 5100 ft., 8–10/VII/1969, J. W. Pearson (UCD). Allotype, male, same data as holotype (UCD). Paratypes: CALIFORNIA: 2 ♀♀, same data as holotype, 1 (USNM), 1 (UCD).

Discussion

At least the posterior half of the scutum in both *mundulata* and *steyskali* is black; all other species of *Valentibulla* are easily distinguished by having a scutum with grayish tomentum (see preceding key). The latter species is distinctive in having vein R2+3 quite sharply upturned close to its apex, while that curve in *mundulata* is gradual (Fig. 9); the apical hyaline area in cell R5 in *steyskali* forms an equilateral triangle due to the rather marked expansion of the apex of that cell, while the dark apical V-shaped mark in *mundulata* is more constricted; the marginal hyaline areas in cell Cu1A in *steyskali* are distinctly wider than the intervening dark marks, while in *mundulata* the hyaline and dark marks are about the same width. Other wing characters to distinguish these two species will be found by comparing Figs. 9 and 10. In some respects, the wing patterns of *mundulata*, *californica* (Coquillett), and *munda* (Coquillett) are quite similar (see Foote and Blanc,

1959:155, figs. 5, 6), but the glossy black scutum serves to distinguish *mundulata* from those species.

Xenochaeta Snow

This rarely encountered genus is represented in U.S. collections by a total of only 10–12 specimens, as far as known. The type-species, *dichromata* Snow (1894:166), was discussed as occurring in California by the authors (Foote and Blanc, 1963). Since that time, a few additional specimens of *dichromata* and of the only other U.S. species belonging to the genus, *aurantiaca* (Doane) (1899:185), have been examined and found to present a considerable amount of variation, particularly in coloration. We have not been able to find any consistent morphological characters other than wing pattern that enable us to distinguish these two species. The new key presented here supplants that previously published by Foote (1960:109).

- Wing pattern dark, with numerous small, discrete rounded hyaline spots; discal cell with at least 1 hyaline spot; hyaline spots in cell R1 immediately distad of subcostal cell separated from each other by a distinct dark bar *aurantiaca* (Doane)
- Wing pattern consisting of large, diffuse hyaline spots on a dark background; discal cell almost entirely dark; hyaline spots in cell R1 immediately distad of subcostal cell fused with each other and with large hyaline spots immediately posterior to them in cells R3 and R5 *dichromata* Snow

Xenochaeta aurantiaca (Doane)

Previously known only from Washington, *aurantiaca* is now found to occur in California according to the following specimen data: CALIFORNIA: 1 ♀, Mendocino Co., Navarro R., 3 mi SE Dimmick State Pk., 25–30/VII/1971, P. Rude (CIS); 1 ♀, Trinity Co., Butter Cr., 3450 ft., ca. 12 mi. SE Hyampom, 22/VII/1968, H. Leech (CAS); 1 ♀, Marin Co., Mill Valley, 360 ft., 22–24/I/1968, P. H. Arnaud, Jr., flight trap (CAS).

Xenochaeta dichromata Snow

This species, previously known from Oregon, Washington, and California, is now represented by the following additional records: MONTANA: 1 ♂, 3 mi. SE Polson, 26/VII/1966 (USNM); 1 ♀, 33 mi. N Kalispell, 9/VII/1966, J. Novak (USNM). CALIFORNIA: 1 ♂, Mendocino Co., Coast Range Pres., 5 mi. N Branscomb, 26–27/V/1976, R. Wharton, flight trap (CIS); 1 ♂, Mendocino Co., 1 mi. SE Piercy, 20–21/V/1976, J. Powell (CIS); 1 ♂, Siskiyou Co., McBride Spgs., 1524 m, 8/VIII/1967, P. H. Arnaud, Jr. (CAS).

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SCIENTIFIC NOTE

BIOLOGICAL DATA ON *CRYPTOCEPHALUS PALLIDICINCTUS*
FALL (COLEOPTERA: CHRYSOMELIDAE)

While determining an unsorted lot of chrysomelid material from the collection of the University of California, Riverside, five unusual specimens of a *Cryptocephalus* were noted. These were tentatively determined as *Cryptocephalus pallidicinctus* Fall. In a review of the genus, White (1968, Smithsonian Institution, Bull., 290:76) states that this was the only North American species treated whose type was not examined. The type represented the only specimen known. For confirmation of the identification of the Riverside specimens the type for *C. pallidicinctus* was borrowed from MCZ. Comparison confirmed the identification.

All five UCR specimens were collected at the UCR Boyd-Deep Canyon Research Station, just south of Palm Desert, Riverside County, California.